

Date: Thu, 25 Nov 93 04:30:14 PST  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V93 #123  
To: Ham-Ant

Ham-Ant Digest                      Thu, 25 Nov 93                      Volume 93 : Issue 123

Today's Topics:

                    Compact Quad  
                    helical antennas  
                    My favorite BAZOOKA (+6db :-)  
                    Need advise on AM radio ant. & reception (2 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 24 Nov 93 18:56:47 GMT  
From: ogicse!cs.uoregon.edu!sgiblab!sdd.hp.com!hpscit.sc.hp.com!  
paulz@network.ucsd.edu  
Subject: Compact Quad  
To: ham-ant@ucsd.edu

Many years ago, I experimented with a half-size quad. I used a single "turn" of wire around the loop, and put loading coils in the middle of each side. (The loop was in the so-called diamond orientation). Feeding at the bottom corner gave an impedance in the order of 12 ohms. I used a 4:1 balun to match to 50 ohms. The bandwidth with reasonable SWR was 100 kHz. The low impedance and narrow bandwidth are consistent with an efficient compact antenna.

I was disappointed that the antenna did not have much directivity. Further experimentation showed that the radiation pattern was mostly straight-up! That is what happens with a horizontally polarized antenna close to the ground. Once I understood this, my results were just like the ARRL Antenna Book.

73, and happy experimenting,  
Paul AA6PZ

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Date: 24 Nov 93 18:35:22 GMT  
From: ogicse!hp-cv!sdd.hp.com!col.hp.com!srngenprp!glenne@network.ucsd.edu  
Subject: helical antennas  
To: ham-ant@ucsd.edu

Todd Little (little@iamu.chi.dec.com) wrote:

: This discussion of helicals has me wondering about a few things.

: 1) I've heard that a conducting boom can be used with a helical. Is this  
: true and if so, does it affect the geometry of the antenna? Has anyone  
: had any experience with using a conducting boom?

Yes, it is true. I've built a number of helices and found that metal  
booms can work fine. I don't believe there is a lot of coupling to  
the boom though I haven't done an exhaustive study.

: 2) Along a similar vain, is it possible (feasible) to build concentric  
: helicals for 2 meters and 70 cm on the same boom?

Yes again. I built concentric helices and used them to feed a common  
dish for mode L on one of the earlier OSCARs. It worked very well. I  
measured coupling between the two feeds and found it to be very small,  
below -40 dB as I remember for both bands (1269 and 435 MHz). These were  
very short helices, on the order of a couple or three turns.

: 3) For a 2 meter helix, how do you build the reflector? Supporting a  
: 6-8 foot square or circular reflector must be a challenge.

It is. The only one I built was for ESSA/NIMBUS satellite reception on  
136 MHz about 1972. It was made out of fir and chicken wire with a  
bunch of supports and reenforcements. It was quite a monstrosity but  
performed very nicely.

Rick Karlquists suggestion about using a pair of helices to generate  
linear polarization is also a useful one. If you feed a pair of helices,  
one left and the other right hand polarized, from a power splitter  
you get linear polarization.

In response to another comment in this thread, I think that a helix  
has \*more\* gain per boomlength than a yagi for anything larger than a  
pretty short boom. A yagi gets better than 6 dB with under a quarter

wave boom but I think a long helix beats a long yagi. The 4.2 lambda design I am most familiar with provides a little more than 16 dBi if everything is right. According to Kraus (w8jk and the helix's inventor as far as I know) a similar length helix gets you about a 20 degree beamwidth. For a lossless antenna (100% efficiency) this nets about 20 dBi.

They have broad gain and match bandwidths and are great antennas. They are a bit more difficult to fabricate in the hamshack though.

Glenn Elmore n6gn

ax.25 n6gn@wx3k.#nocal.ca.usa.na  
amateur IP: glenn@SantaRosa.ampr.org  
Internet: glenne@sr.hp.com

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Date: 23 Nov 1993 20:38:55 GMT  
From: koriel!newscast.West.Sun.COM!abyss.West.Sun.COM!sunspot!myers@ames.arpa  
Subject: My favorite BAZOOKA (+6db :-)  
To: ham-ant@ucsd.edu

In article <1993Nov22.211929.1@tntvax.ntrs.com> ddb@tntvax.ntrs.com writes:  
>About 6 years ago I received in a QSL card plans for an antenna that looked  
>interesting - a BAZOOKA. I thank who ever sent it to me (I just don't  
>remember).  
>These are the directions for making a form of Bazooka antenna with a  
>demonstrated performance gain of 6db (or better) gain over a standard dipole.  
>The radiation pattern is broadsided with nulls off the ends.

Wait.... how does a Bazooka, which is a dipole, have 6dB of gain over a dipole?

>I just put one up on 20m in my attic (with no tuner) and found a 4-5 S level  
>jump in signals over a G5RV with a tuner. I just wish I put it up before  
>the sweepstakes!

A 4-5 S level jump is actually more like 24-30dB improvement in signal strength. It sounds to me like your G5RV wasn't working very well, not that the bazooka is anything special.

>If you use it let me know I'm interested in your results.

>

>Dan Bowker NY9K

>

>P.S. I had a heck of a time (and gave up) getting one up on 10m. Let me know  
>if you try and/or succeed.

I built one for 10m and it worked as I expected; a 1/2 wave dipole with a  
broader SWR bandwidth. However, keep in mind the antenna only really fools  
you into believing you have a broader SWR bandwidth; as you move away from the  
tuned frequency, a considerable portion of your transmitted power is lost in  
the coaxial stubs.

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\* Dana H. Myers KK6JQ, DoD 466 | Views expressed here are \*  
\* (310) 348-6043 | mine and do not necessarily \*  
\* Dana.Myers@West.Sun.Com | reflect those of my employer \*  
\* This Extra supports the abolition of the 13 and 20 WPM tests \*

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Date: Mon, 22 Nov 1993 03:08:25 GMT  
From: mustang.mst6.lanl.gov!nntp-server.caltech.edu!elroy.jpl.nasa.gov!swrinde!  
cs.utexas.edu!howland.reston.ans.net!spool.mu.edu!torn!nott!cunews!  
freenet.carleton.ca!Freenet.@@nntp.ucsb.edu  
Subject: Need advise on AM radio ant. & reception  
To: ham-ant@ucsd.edu

I do realize that this forum is usually more more serious ham/packet/etc.  
people, but I would like to know if anyone has any suggestions for me.

I understand completely how FM ant. work and what is better/worse about  
various designs. But, I enjoy listen to a radio show out of New York,  
which I can pick up only late at night on 770am (WABC talk radio station).  
This station doesn't come in that great and usually fades in and out. I  
was wondering if there would be a way to make or buy a better AM ant. so  
that I could receive this station better. (I do realize that it is  
probably impossible to listen to this during the day due to too much  
interference, but I would love it if I could just tune in a bit better at  
night).

The back of my sterio has ant. outputs that are like this:

0	0	0	0
FM	FMxxx	AM	GRD

0=a wire connection screw

So if anyone knows of any ant. that could be attached (either bought or  
made) then I'd love to hear about it)

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*      *  *  *  *  *  *  *  *  *  *
*      *****  *  **  *****  *  *  *****
*****  *  *  *  *  *  *  *  *****  *  *

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Date: 23 Nov 1993 14:23:42 GMT  
 From: ucsnews!sol.ctr.columbia.edu!news.kei.com!yeshua.marcam.com!  
 zip.eecs.umich.edu!destroyer!news1.oakland.edu!vela.acs.oakland.edu!  
 prvalko@network.ucsd.edu  
 Subject: Need advise on AM radio ant. & reception  
 To: ham-ant@ucsd.edu

And another alternative is to take \$45 down to your local K-Mart and buy  
 a G.E. SuperRadio III. I am 99% certain it will have a much better  
 receiver than your stereo's A.M. tuner.

paul

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Date: 24 Nov 93 22:22:11 GMT  
 From: ogicse!hp-cv!sdd.hp.com!col.hp.com!fc.hp.com!perry@network.ucsd.edu  
 To: ham-ant@ucsd.edu

References <1993Nov4.162453.10770@ccd.harris.com>,  
 <1993Nov5.061202.27862@ke4zv.atl.ga.us>, <CGLEox.EGo@fc.hp.com>  
 Subject : Re: Tower Guy Anchors

Jay Kesterson K0GU (jayk@fc.hp.com) wrote:  
 : Gary Coffman (gary@ke4zv.atl.ga.us) wrote:  
 : : If you can get access to a cable tension gauge, set the guy tension to  
 : : 50-75 pounds depending on temperature, the tower will "grow" in warm  
 : : weather so use the higher tension setting then. The guys will loosen in  
 : : cold weather as the tower shrinks.  
 : : Gary  
 :  
 : The Rohn catalog says to tension the guys to 10 percent of their rated  
 : value (when using the proper size guys they recommend for various towers).  
 : I'm no expert on why, but thats what is says.  
 : 73, Jay K0GU jayk@fc.hp.com

I found a way to bypass the regular Statics/Dynamics course at my college,  
 but a CE friend explained it to me. His dissertation explained stressed  
 ceramic materials but it also applies to stressed metals.

A material under stress is typically preloaded to prevent a transition

from stressed to unstressed (or reverse-stressed). The stressed - unstressed transition causes several orders of magnitude more damage than simply varying stress around a constant stress point.

Of course, you don't want to overstress the guys. The idea is to compute the tension on the downwind guy during the maximum expected windload and make sure it's greater than zero.

Perry Scott  
AA0ET

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Date: Tue, 23 Nov 1993 20:19:32 GMT  
From: olivea!sgigate.sgi.com!sgiblab!swrinde!cs.utexas.edu!howland.reston.ans.net!  
vixen.cso.uiuc.edu!moe.ksu.ksu.edu!osuunx.ucc.okstate.edu!olesun!  
gcouger@decwrl.dec.com  
To: ham-ant@ucsd.edu

References <1993Nov4.162453.10770@ccd.harris.com>, <CGwo59.G6G@hpcvsnz.cv.hp.com>,  
<1993Nov23.092547.28184@ke4zv.atl.ga.us>ton.ans.  
Subject : Re: Tower Guy Anchors

>  
>A deadman is a good plan. Even pressure treated wood will rot  
>out fairly quickly in some soils though. A heavy walled galvanized  
>steel pipe makes a better deadman. Weld the emerging guy rod  
>to the deadman forming a 'T'. A couple of bags of ready mix  
>concrete will set the deadman in place in it's trench. Pour  
>a cylinder of concrete around the emerging rod to protect it  
>from corrosion as well. Then backfill and compact the soil.  
>

Pressure treated wood creasote will out last unprotected steel by a considerable margin. Several spieces of untreated wood will out last steel. One in particular is Boi's deArc sp? I know of a corner post that has been in place over 70 years. Only the heart wood is decay resistant.

Concrete around steel is better than steel but in salt water enviorments the Steel will rust out of the concrete in a few years and imersed wood will out last reenforced concrete.

Some clay soils are very bad about moving as they cycle from wet to dry. North of Dallas Texas to get a corner post to hold we set 3 10 inch creasote post 10 feet long in 2 foot by 5 foot holes and back filled with gravel we also placed a dead man between the corner and second post. Any thing less would pull out of the ground in short order.

If you are going to use steel under ground make sure it is well protected with concrete above the ground line and shaped so that water will not stand on the steel also make sure the top is sealed so that water does not run down the inside.

Sorry if this is a little disjointed I have been interrupted several times.  
Good Luck  
Gordon AB5Dg

C  
A conc

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/*                      Gordon Couger                      */
/*      Biosystems & Agricultural Engineering              */
/*      Oklahoma State University                          */
/*      114 Ag Hall, Stillwater, OK  74074                 */
/*  gcouger@olesun.agen.okstate.edu 405-744-9763 day 624-2855 evenings */
/*      I Speak only for myself and not for anyone else    */
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End of Ham-Ant Digest V93 #123  
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